AMS or Glyphosate Mixed with the Low-Volatile Dicamba Formulations – Which One Lowers Spray Tank pH the Most?

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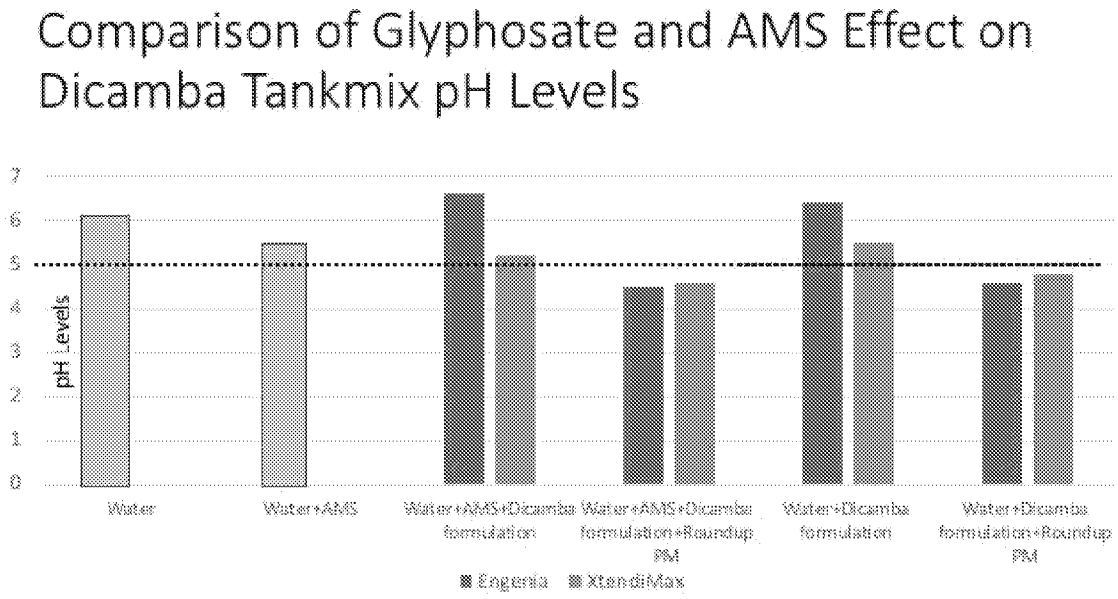
This is the second in a series of blogs on research that Dr. Tom Mueller and I did to examine some of the directions on the XtendiMax and Engenia labels. In the second test, we examined the effect on spray solution pH when AMS was added to Engenia or XtendiMax, with or without glyphosate.

Both dicamba formulation labels specifically state that no AMS or acidifying buffering agents can be used as it lowers the spray solution pH. This leads to a question: If Roundup PowerMax can reduce tankmixture pH by 1.0 to 2.0 pH units, how much does AMS effect pH? To answer this question a study was conducted where a 7.5 lbs/A rate of dry AMS was added to a spray solution of either XtendiMax or Engenia. The results of this research showed that AMS lowered the pH usually less than 0.5 pH unit. The labels were correct that adding AMS typically lowers the spray tank pH, but in this study, certainly no more than glyphosate and depending upon the tankmixture less than glyphosate.



Mueller 2019 preliminary data

Our point with this research is not to encourage the use of AMS. In fact, just the opposite is true, as any tankmixture that may promote volatility needs to be avoided. Given the prominent attention that AMS has received as a dicamba volatility enhancer, and given that pH was reduced less with AMS than glyphosate, then this study would call into question the K-salt glyphosate tankmixture with the low volatile dicamba herbicides.

Perhaps there is another mechanism besides pH affect that is influencing dicamba volatility under field conditions when AMS is used. If not, then leaving AMS and glyphosate out of the tank when using Engenia or XtendiMax would be the best recommendation. Another consideration would be to develop a new formulation of glyphosate that does not so drastically effect pH when used with Engenia or XtendiMax. That might be easier said than done as there is a reason all glyphosate formulations lower spray tank pH. Low pH improves efficacy of glyphosate.

In our next post, we'll cover our research on the ability of three pH modifiers approved on the Engenia label to raise spray tank pH.